

Area-wide Diabetes Care: the Manchester Experience with Primary Health Care Teams 1991–1997

S. Wells, I. Benett*, G. Holloway, V. Harlow

Diabetes 2000 Project/Manchester Local Diabetes Services Advisory Group, Manchester Multidisciplinary Audit and Quality Group, Manchester Postgraduate Health Services Centre, Oxford Road, Manchester, UK

Diabetes 2000 has evolved over 6 years from a practice-based audit to a cross-sector, multidisciplinary, multi-agency project. Its prime aim is to improve the care of people with diabetes in Manchester. There are 93 out of 111 practices and all four Trusts now involved. The prevalence of diabetes known to the project is 1.46 % (among 418 000 people). Eighteen practices have never participated at any level. There are 6088 people on the now outdated DOS database, another 2000–5000 people are thought to be missing. The audit has shown limited improvements in care over the years. Despite only modest quantitative success there is now in place a mechanism for implementing Department of Health recommendations for a good diabetes service, namely, a city-wide register, management and referral guidelines across primary and secondary care, the start of an integrated care programme and, above all, goodwill on behalf of all participating providers. © 1998 John Wiley & Sons, Ltd.

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Introduction

Diabetes care was the first clinical subject to be explored on a large scale by Manchester MAAG (Medical Audit Advisory Group) which had formed in 1991.¹ The project was called Diabetes 2000 and began as a city-wide primary care audit, evolving over the years into the city's Local Diabetes Services Advisory Group (LDSAG). LDSAGs are groups of people with an interest in diabetes, including health care professionals and patients, set up to make recommendations for local diabetes services to health care purchasers and providers. It is now in a position to begin to implement the recommendations in HSG (97),² to house and manage an active city diabetes register and introduce an integrated care package. The project received pump priming audit monies from the British Government's Department of Health (DOH) for 2 years to establish itself in the early 1990s, and subsequent bidding to the DOH, North Western Regional Health Authority, North West Regional Health Authority/NHS Executive Office North West secured constant activity and expansion. This report describes the development of the project, its successes and achievements and its difficulties and failures.

* Correspondence to: Dr Ivan Benett, Manchester Local Diabetes Services Advisory Group, Manchester MAAQ, 1st Floor, Manchester Postgraduate Health Services Centre, Oxford Rd, Manchester M13 9B2, UK

The Aims of Diabetes 2000

At its inception in 1991 there were three explicit aims for Diabetes 2000. These were:

1. To encourage the development of a culture of clinical audit in Manchester general practice.
2. To produce a non-threatening and manageable stepwise audit method (a ladder of quality).
3. To contribute to improving the care of Manchester people with diabetes by the year 2000.

As the project steering group became a LDSAG, the aims became more wide ranging. The LDSAG advises and assists Manchester Health Authority to improve diabetes services in Manchester by:

- Devising a preferred standard of care for all people with diabetes in Manchester and disseminating it throughout all aspects of the diabetes service in the city.
- Advising on the implementation of systems to deliver the preferred standard of care effectively and efficiently.
- Taking into account the views of people receiving care for diabetes in Manchester.
- Promoting communication and co-operative working between all sectors and professions involved in providing care for people with diabetes in Manchester.
- Developing good working relationships with agencies responsible for planning the delivery of health care.

- Identifying the educational needs of health care professionals, advising on appropriate ways of meeting those needs, and assessing whether those needs have been met.
- Ensuring the establishment and responsible use of a city-wide register of people with diabetes.

Methods

The project was intended to be long term in outlook, recognizing that changes in the early to mid 1990s in the patterns of screening, monitoring and attention to complications may not show in outcomes for many years. The project has therefore gone through at least two phases and is now about to enter a third in response to HSG (97) 45.

The first phase of the project was to offer to GPs and their teams an audit tool to fulfil the requirements for chronic disease management re-imbursements. This made the project interesting, relevant, and potentially lucrative. Participation was on a voluntary basis and both practice and patient confidentiality was inviolate. The benefits to the practice were a pair of hands to help with the practical work of establishing how well or otherwise they were doing. A key element was confidential feedback by the project team showing performance of the practice against other local and city-wide standards using aggregated and anonymized data.³

The audit was designed as a practical tool for practice teams. Its development was overseen by a steering group of about 30 people from primary care, secondary care, academic departments, and patient/carer groups. Each member was given equal standing. As the purpose was very much related to general practice, the steering group was chaired by a GP (IB); and all working groups were led by a GP. Diabetes 2000 pioneered a model of a city-wide project with its project co-ordinator and fieldworker. They received training in diabetes issues, facilitation and change management. The project fieldworker was the main contact with practices, and had responsibility for recruitment, hands-on training and support of practice staff, and personal feedback of information to practice teams.

The audit was designed to be adopted in a step-wise manner. Four levels were developed:

- I: *Registration*. The practice maintains a register of names and addresses of all consenting diabetic patients.
- II. *Monitoring*. A special recording method is in place for diabetes encounters, and all the elements of an annual review have been completed in the last 12 months.
- III. *Complications and actions/referral*. The incidence of complications is known and appropriate action (in accordance with local guidelines) has been taken to reduce risk of disability.

- IV. *Outcomes (based on St Vincent targets)*. The incidence of negative outcomes is known and critical event analysis undertaken if appropriate.

The main package and its data collection/entry forms were for use as a retrospective audit. Levels II and III had subsections for patient education/satisfaction and pregnancy questionnaires. Facilitated significant event analysis was offered as a method of audit of outcomes. The package also had built-in training and a strong educational component. Further education was offered in workshops, seminars, and roadshows. A GP special interest educational group was developed.

A Diabetes 2000 database was commissioned as a comparative performance tool and the software was developed by the University of Manchester. Data were organized by practice register and the system produced performance reports, presented in graphical format. An *ad hoc* reporting facility allowed interrogation of all records. This database contained patient information coded by NHS number so that individual patient names were not recorded.

In 1994, Oldham, Tameside, Trafford and Bury MAAGs adopted the Diabetes 2000 model. Anonymized and aggregated data were exchanged on floppy disk between districts.

After an initially enthusiastic uptake, particularly at levels I and II, it became clear that real improvements in quality needed to involve all providers of care, in particular secondary care. Guidance on management and referral criteria had to accompany the audit and these required the ownership of both primary care and secondary care. As provision in both primary and secondary care became more multidisciplinary, in particular with greater nurse involvement, a broader approach was needed. This coincided with the formation of the LDSAG and the requirement in the North West Region for the establishment of a register in each district.

Thus, in 1995, the project entered its second phase and the project team assumed the management and secretariat functions of the Manchester LDSAG. The main focus of work has been to develop a live and working register for all people with diabetes in Manchester. This was to offer the opportunity to act as a default call-recall mechanism if practices' own registers failed, to provide cross-sectional and longitudinal epidemiological information for the health authority, and to continue to offer practices (and now other providers of care) comparative audit data. In addition, the project has been mindful that this register could potentially form the central database for a patient management system which links all providers of care electronically. People with diabetes have been asked positively to consent to their names being entered onto the register.

Other initiatives have included the development guidelines for retinopathy screening. The LDSAG has working groups to address service development, district accreditation for diabetes, management and referral

guidelines, consumer concerns, and professional education. The project is also helping to cost diabetes in the primary care setting from the audit database and will introduce audit as part of the curriculum of an advanced diabetes course for practice nurses available in 1998.

Results

Perhaps the most important result of Diabetes 2000 has been to raise the awareness of diabetes in Manchester, contribute to the adoption of an audit culture, and place primary care as a leading element in the development of diabetes care in the city. The project exceeded its target of 25 practices in the first year (59 were recruited) and reached 80 of the total 111 Manchester practices in 1993. When the other Greater Manchester districts are included, the project has data on about 15 000 people with diabetes.

In 1995 an evaluation was undertaken by Manchester Metropolitan University and the Lancashire College of Nursing and Health Studies.⁴ The evaluating team used a questionnaire and interview method to establish the strengths and weaknesses of the audit. One hundred and twenty-three of the 219 practices returned questionnaires. Of the total number of completed questionnaires, 54.5 % were completed by practice nurses, 23.8 % by GPs, 18.2 % by practice managers, and 3.5 % by other personnel, including receptionists and audit assistants. The results of the questionnaire are shown in Table 1. Fourteen interviews were carried out with GPs and/or

practice nurses, depending on the practice. The range of comments from the interviews confirmed the mainly positive views expressed in the questionnaire, but also highlighted the problems experienced.

The uptake of each level of audit is shown in Table 2. This shows good uptake of levels I and II but disappointing use of levels III and IV. The pregnancy and significant event audit were not taken up by any Manchester practice. The patient satisfaction and education questionnaires were less popular with practices in Manchester than in Bury, probably because they were given a higher priority by the Bury MAAG.

Prevalence of known diabetes ranged from 0.58 % to 4.18 % between the 89 Manchester practices who completed level I. The aggregated mean prevalence rose from 1.24 % in 1992 to 1.46 % in 1997. The place of care of people with diabetes also shifted towards general practice over the 5 years from 1992. At the beginning of the project 42 % of patients were managed in general practice (two out of three of these in mini-clinics). By 1997 49.5 % of patients were being managed in this setting. Level II audit and re-audit results are shown in Table 3. This shows a gradual improvement of monitoring for nearly all criteria.

Levels III and IV were not well taken up and re-audit results have been difficult to obtain. Most practices have felt that the complexity of level III and the small numbers of level IV endpoints were disincentives to audit. Furthermore level III became out of date before the majority of practices began to use it. A typical level III question, for example, asked whether those with an

Table 1. Extent of agreement/disagreement with statements about the impact of the Diabetes 2000 audit (values = % of respondents)

Questions beginning The D2000 Audit	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree	Not applicable
Has provided information of value to the practice	12.4	74.2	6.7	4.5	2.2	0
Has improved patient care within the practice	7.8	58.9	13.3	14.5	2.2	3.3
Has identified ways of improving care within the practice	6.7	62.9	12.4	14.6	1.1	2.2
Has helped the practice identify diabetic complications	4.4	42.9	16.5	29.7	1.0	5.5
Has triggered changes in the care of diabetic patients within the practice	8.0	51.0	14.8	20.5	3.4	2.3
Has highlighted the patients view of their care	5.6	27.8	18.9	24.4	6.6	16.7
Has been successful in highlighting services not provided	24.6	58.4	4.5	5.6	2.3	4.5
Has helped identify patients who have not been seen by the practice recently	29.5	54.5	2.4	9.1	0	4.5
Has highlighted difficulties in communication with other services	10.7	44.0	22.6	15.5	2.4	4.8
Aids the annual review of patient care	24.7	55.9	9.7	8.6	0	1.1
Has increased the practice's knowledge of patient care	6.8	69.2	8.0	11.4	2.3	2.3
Has stimulated general improvements in the way patient records are kept	6.7	46.1	11.2	30.4	3.4	2.2
Has stimulated other audit activity within the practice	2.2	28.9	11.1	46.7	6.7	4.4
Has <i>not</i> helped the practice monitor patient progress	3.3	12.2	10.0	55.6	18.9	0

Table 2. Manchester practices' use of Diabetes 2000 (values = number of practices out of 111)

	Phase 1 completed (first look)	^a	Phase 2 completed (re-audit × 1)	^a	Phase 3 completed (re-audit × 2)	^a	Phase 4 completed (re-audit × 3)	^a
Level I Register	89	4	Continuous Process		Continuous Process		Continuous Process	
Level II Monitoring	80	4	48	3	23	3	6	2
Level III Complications	30	6	1	1	0	0	0	0
Level IV Outcomes	2	8	0	0	0	0	0	0
Pregnancy questionnaire	0	0	0	0	0	0	0	0
Patient satisfaction and education	20	0	0	0	0	0	0	0

^aAudit still in progress.

Table 3. Diabetes 2000 level II audit and Re-audit results (values = % of all patients audited who had a positive record of monitoring)

	Phase 1 1st look (%)	Phase 2 Re-audit × 1 (%)	Phase 3 Re-audit × 2 (%)
Weight/BMI	69	75	83
BP	82	85	86
Cho/lip	38	50	68
HBA _{1c}	68	71	84
Urine prot.	60	64	73
Foot pulses	40	48	65
Fundus ex.	52	61	68

Phase 4 (re-audit × 3) has been completed by 6 practices only.

accumulation of signs and symptoms indicating peripheral neuropathy had seen a chiropodist in the previous 6 months. Other common criticisms were the lack of attention to glycaemic, blood pressure, and risk factor control. The steering group responded to these problems by reviewing the whole subject and in April 1997 produced an evidence-based *Practical Working Document for Primary and Secondary Care* to replace the original audit.

There are, as yet, no tangible results from the second phase of the project. The register is not yet in place. However, the ground has been meticulously prepared with a view to the 21st century. The new software will be able to link all providers of care electronically, through the NHS 'intraNET'. Information will be transferred almost instantaneously between primary and secondary care. Audit of activity and outcomes will be possible at the push of a button. It is planned to populate the register with the existing data from phase I of the project and

build on it over time. The register is to be in place by October 1998.

A city-wide eye screening programme is now in place, with guaranteed funding for accredited optometrists undertaking first line screening. An advanced practice nurse education programme with a diploma qualification is to start in January 1998. This is under the auspices of an integrated care project to bring together the work on the register, guidelines, and professional education to provide more effective and efficient care delivery for Manchester people with diabetes.

Discussion

Has the Diabetes 2000 project in Manchester been successful? There is only partial evidence that it has succeeded in developing a culture of audit in Manchester. There were other factors influencing practices, but the evaluation undertaken in 1995 does show that those participating were generally positive about their involvement. The stepwise audit was taken up by the vast majority of practices, even though not many managed to get beyond the level II stage. The results show that monitoring of key indicators did improve. However improvement in detection and treatment of complications has not been demonstrated.

The reasons for the range of prevalence can only be speculated upon. Some practices have a large elderly or ethnic minority population, others have a relatively young practice profile, which may account for some of the differences. It is also possible that practices have differing degrees of vigilance in identifying diabetic patients and recording them on their registers. The apparent improvement in monitoring data was based on the 23 practices who completed three cycles of the audit; they are obviously the enthusiastic practices. It was not possible to establish whether the other practices

improved to the same degree, but it is unlikely that they did.

A structure is now in place to advise the health authority effectively about how services might be improved and this has been shown by the development of an eye screening protocol. The LDSAG can now move to other areas of care such as foot screening and coronary heart disease management. A live register is soon to become a reality after a long gestation and offers the prospect of rapid and reliable exchange of information between providers of care. An education plan for professionals is beginning to take shape.

However, the successes have been less dramatic than might have been hoped. The difficulties have included the large number of practices to be accessed by a relatively small project team. The team itself has been through several changes in personnel and there have been times when it has been understaffed. In its first phase, Diabetes 2000 exceeded uptake targets for the first two levels of audit. However, the increasing involvement of audit staff in development work, together with fluctuating staff levels, contributed to a reduction in the amount of support that could be offered to practices just as the project was at its peak. This may have contributed to a fall-off in enthusiasm from some practices in the second phase.

It has also been difficult working in a district with several provider Trusts with their own differing agendas and priorities. It would have been tempting to rush into buying new population management register software for Diabetes 2000. However the extra care taken to research and specify the exact requirements for a modern register has meant that Manchester does not currently boast a 'state of the art' register. The project has also not found an effective way to access the views of people with diabetes, still less to promote and represent them. This is an important failing and needs to be addressed.

Even the most enthusiastic practices found it difficult

to undertake the level III and level IV audits. The level III audit may have been too complicated or time consuming. The level IV audit of endpoints may not have felt relevant due to the small numbers. Although another approach of significant event analysis was offered, this too was not taken up, probably due to the time involved. The fact that there is no audit information should not imply that complications were not being identified and acted upon. The new live register with its electronic links with practices and Trusts will produce easily accessible Level III and level IV data.

It is too early to say whether Diabetes 2000 has been successful in meeting the high expectations of HSG (97) 45, but it is generally felt that the structures are now in place to do so.

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